

# Gemini Express Star Hub

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## User's Guide



GEMINI EXPRESS HUB

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**NLynx**  
Technologies  
Connecting made easy

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## SAFETY

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### **Note: READ THIS FIRST**

1. Do not connect GEMINI active stars to any type of public network.
2. Do not connect any outdoor cabling to GEMINI active stars without proper lightning protection.
3. Do not use unauthorized power supplies or cables with the GEMINI series active stars.
4. Do not connect GEMINI active stars to non-5250 protocol devices.
5. Do not disassemble or modify the power supply and its cables.
6. Do not open GEMINI active stars connected to power or data cables. Disconnect all cables prior to configuration.
7. Devices attached to the UTP network must comply with the voltage and current limits for Class 2 Power-Limited Signal Circuits as defined by article 725 of the National Electrical Code and Section 16 of the Canadian Electrical Code.
8. For your safety, receptacles must be properly wired and grounded.
9. Never attempt to service equipment connected to the data cable network or the grounded receptacle during an electrical storm. Exposure to lethal voltages may occur when lightning is present.

The following FCC statement applies to the N Lynx Technologies Gemini active stars.

### **FCC Statement**

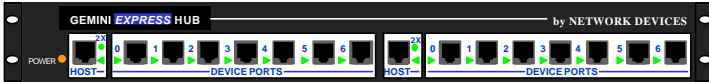
**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which the user will be required to correct the interference at his own expense. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

# INTRODUCTION

This user's manual presents the GEMINI Express active star hubs for use with the IBM 5250 protocol. The 5250 family of products consists of the IBM's System 34, 36, 38, and the I Series AS/400 along with many supporting devices manufactured by IBM and other companies.

## GEMINI EXPRESS HUB



The Gemini *Express* fully supports the new line speed (2Mbps) and throughput performance increases (up to 4 times faster!) available on the latest IBM AS/400e products. The use of the Gemini *Express* Hub ensures protection against immediate and future performance bottlenecks caused by standard single-speed hubs in the AS/400 physical-wiring infrastructure. The Gemini *Express* Active Star Hub transparently supports ALL new features and performance gains available on the new IBM AS/400e Advanced Series Controllers and the new 5250 *Express* Emulation adapters, such as TCP/IP over 5250. The Gemini *Express* Hub has 2 Host Ports supporting 14 Device Ports available with either R-J11 or RJ-45 connectors. Other features include Advanced Noise Filtering, LED Port Diagnostics, Configurable UTP Pin Assignments, and a Field Replaceable wide-ranging Power Supply.

**UNPACKING**

Remove the packing material and check for the items below:

Each star has a (100-240 VAC input) external power supply attached.



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**AC POWER CORD**  
(North American units only)

Visually inspect all items for damage. If any component is damaged, contact NLynx for a replacement.

**DO NOT APPLY POWER TO ANY DAMAGED COMPONENT!**

# ACTIVE PAIR SETUP

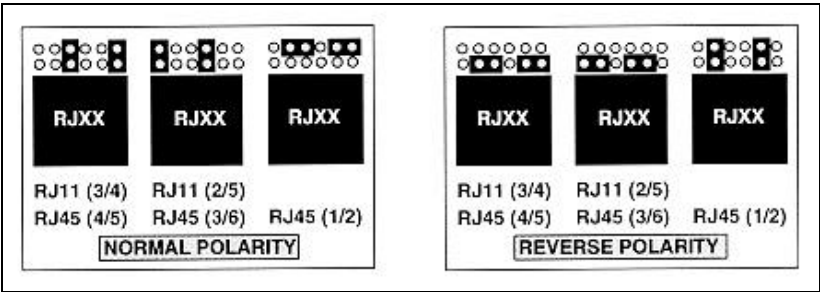
GEMINI series active stars can be factory configured per customer request. The default factory setting is set with Pins 4 and 5 active on RJ45 units (4 = Tip, 5 = Ring), Pins 3 and 4 on RJ11 units (3T/4R).

The active pair may be re-configured by performing the following procedure:

- 1. Disconnect all power to the unit.
- 2. Remove the top cover screws located on the rear panel.
- 3. Gently slide the top cover back one-inch.
- 4. Hold the top cover and tilt it up.

Reconfigure the jumpers located behind the RJ connectors as required. Settings for polarity and active pair assignment are shown below:

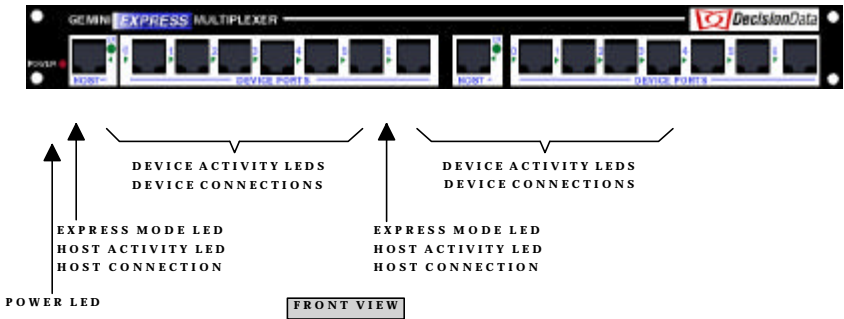
## ACTIVE PAIR JUMPER SETTINGS



All jumpers settings must be identical. To reinstall the top cover, tilt the top cover down, and slide the top cover forward until it mates completely with the bottom cover. Install the top cover screws.

# GEMINI EXPRESS HUB

The GEMINI Express hub indicators and connections are described below.



**Power LED** Amber LED activates when the GEMINI Express Hub is powered up.

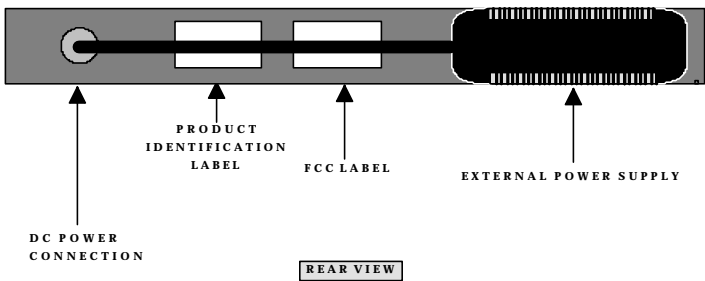
**Express Mode LED** Upper green LED activates when a host port is operating at the Express data rate.

**Host Activity LED** Lower green LED activates when a signal is present in the host jack.

**Host Connector** UTP connection for the host. (RJ11, RJ45, or Shielded RJ45)

**Device Activity LED** Green LED activates when a signal is present in a device jack.

**Device Connector** UTP connection for the device. (RJ11, RJ45, or Shielded RJ45)



## INSTALLATION

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1. The GEMINI active stars are designed for 19" racks. The unit should be properly installed using all four mounting holes. Rack hardware is not provided. It is recommended that plastic or nylon washers be used under mounting screws to protect the star's finish.
2. The external power supply is mounted on the rear panel of the GEMINI active star. The AC power cord must be firmly inserted into the external power supply and strain relieved.
3. Insert the male end of the AC power cord into a properly wired receptacle. All data & mode LED's on the GEMINI active star will activate for two seconds and fade off. The amber power LED on the front panel and the green power led on the top of the external power supply will activate and remain on.
4. The devices attached to each star segment must have unique addresses. Connect all the devices to the GEMINI active star's device jacks. The LEDs may momentarily activate as cables are attached. All device jack LEDs should be off. If any device jack LED remains on or flashes, refer to the troubleshooting section of this manual.
5. Connect the host to the host ports of the GEMINI active star. All data activity LED's will sequentially activate and remain on. If a port and its devices are Express ready then the Express data rate will activate and the Express mode LED will activate. If any data activity LED does not remain on or flashes, refer to the troubleshooting section of this manual. It should be noted that the Express and standard modes are mutually exclusive at the port level. The AS/400 operates a port at the standard rate whenever a standard rate device is detected. The Express mode is achieved on a port when all the attached devices are Express capable.



## PROBLEM SOLVING

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If problems are encountered with the GEMINI series active star, the following guideline is intended to provide a quick resolution.

- 1.) Collect all information relevant to this application.
  - Product serial numbers
  - Host type and operating system software level.
  - Quantity, and type of peripheral devices.
  - Interconnecting cable types and distances.
  - Equipment environment.
  - Interconnection diagrams.
- 2.) Setup the application with the GEMINI active star in one room interconnected with UTP jumpers. Verify the application with a host port and a terminal.
- 3.) Search through the common problems and possible causes provided below.

### **The GEMINI active star's front panel power LED is off!**

- Verify that the AC & DC connections are solid.
- Verify that the AC outlet is functioning correctly.

If the problem persists, observe the status of the external power supply's LED and contact NLynx's technical support.

### **A device is down or unstable!**

- Verify that the host's device type matches the device.
- Verify that the host workstation controller's (WSC) capacity has not been exceeded.
- Verify that the device is properly terminated. A peripheral is terminated when its twiaxial port has two 54.9-ohm resistors located between the "A" phase pin & earth ground and the "B" phase pin & earth ground. Termination is provided by a "Y" or "T" cable assembly or by a terminating balun (i.e. ASFT series).
- Verify that there are no polarity reversals in the cable.
- Verify that the cable distance does not exceed the GEMINI active star's specification.
- Verify that the cable is data grade.
- Verify that the wiring uses natural pairs.
- Verify that the wiring avoids sources of environmental noise.
- Verify that the balun's pinout matches the GEMINI active star's pinout.

- Verify that the host sides balun's pinout/polarity match the device side balun's pinout/polarity.

### **Devices interfere with each other!**

- Verify that devices on star segments have unique addresses.
- Verify that all devices are properly terminated.

### **Devices cannot operate in Express mode!**

- Verify that the host and the device are capable of Express mode.
- Verify that all interconnecting components support the Express mode.
- Verify that all devices on the port are Express ready.
- Verify that all cable distances are within the Express specification.
- The controller may have down shifted to 1MBPS due to errors during installation. The controller will retry the Express mode in approximately one hour.

### **Flashing Express LEDs!**

- Determine the number of Express devices on the port. If there are less than seven devices, the flashing Express LED is normal.

### **Express LED on without data activity!**

- If the host is disconnected during an express connection, the express LED remains on.

**SPECIFICATIONS**

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**GEMINI EXPRESS HUB**

Host Ports/Device Ports	2/14
Data Rate	ALL IBM 5250 protocol rates
Nominal input impedance	100 ohms
Interface	RJ11 or RJ45
Active Pair	Configurable
Distances	
Controller to GEMINI Hub cable)	Up to 2000 ft. (1MBPS on Cat. 5
GEMINI Hub to Device cable)	Up to 2200 ft. (1MBPS on Cat. 5
Controller to GEMINI Hub cable)	Up to 1500 ft. (2MBPS on Cat. 5
GEMINI Hub to Device cable)	Up to 1500 ft. (2MBPS on Cat. 5
Diagnostic LED's activity	Power, host / device port
Power	100-240 VAC to +5VDC external power supply
Temperature	
Operating	0 to 40 C
Storage	0 to 85 C
Humidity	95% non-condensing
Dimensions	19" X 6" X 1.75" (1U)
Warranty	Three years

## **WARRANTY STATEMENT**

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This NLYnx Technologies product is warranted to be free from defects in material and workmanship for a period of three years from the date of purchase. NLYnx's liability under this warranty is limited to cure, repair, or replacement of the product. NLYnx shall not be liable for injury, property damage or other direct, or direct consequential damage, including but not limited to loss of profits or other damage or expenses arising directly or indirectly from the installation, removal, maintenance, use or non-use of the product used separately or in combination with other equipment.

These warranties shall become void where it is determined, at the sole discretion of NLYnx Technologies, that the product has been exposed to excessive physical or operational abuse, acts of God, or theft. Repairs performed by someone other than by NLYnx Technologies will void this warranty. This warranty is in lieu of any and all other warranties, expressed or implied, by NLYnx representatives or distribution, including fitness for particular purpose and merchantability.

The customer may, at their option, purchase an Assist Contract that would provide same day overnight shipping response for field replacement of faulty equipment to maintain your data communication system while equipment repairs are completed. Contact our Sales department for further details.

## **RETURN MERCHANDISE PROCEDURE**

In the event that the product is not as warranted, the customer must contact NLYnx Technologies for a return merchandise authorization number (RMA#) before returning the product to the NLYnx repair facility. Out of warranty repairs are available on a time and materials basis. The customer must contact NLYnx Technologies for a return merchant number (RMA#) prior to shipping the malfunctioning unit to NLYnx. The customer is responsible for all shipping and insurance charges to and from the NLYnx repair facility in Austin, Texas, USA.

**NLYnx Technologies**  
**8313 Highway 71 West**  
**Austin, Texas USA**  
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**Tel.: (512) 301-8000**  
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